

**STATE BOARD MONITORING SPECIAL STUDY
Public Coordination Meeting #4**

**March 20, 2023
2:30 pm – 4:30 pm**

MEETING NOTES

Attendees

Project Team

- Eli Ateljevich/DWR
- Jared Frantzich/DWR
- Dave Huston/DWR
- Bill McLaughlin/DWR
- Jacob McQuirk/DWR
- Patrick Scott/DWR
- Jane Tannous/DWR
- Karen Tolentino/DWR
- Grace Windler/USBR
- Zhenlin Zhang/DWR
- Erika Britney/ICF
- Jenna O’Neill/ICF
- Diane/Captioner

Attendees (listed alphabetically)

- Lauren Beaudin/State Water Resources Control Board
- Bryan Barnhart/DWR
- Barbara Barrigan-Parrilla/Restore the Delta
- Tom Boardman/Westlands Water District
- Tom Burke/Hydraulic Systems
- Ching-Fu Chang/Contra Costa Water District
- Chandra Chilmakuri/State Water Contractors
- Lisa Crowley/Delta Watermaster
- Lea Emmons/City of Tracy
- Bryant Giorgi/DWR
- Jelena Hartman/ State Water Resources Control Board
- Kevin He/DWR
- Anna Hegedus/DWR
- John Herrick/South Delta Water Agency
- Tracy Hinojosa/DWR
- Dan Hinxman
- Hans Kim/DWR
- Paul Larson/DWR
- Michelle Leinfelder-Miles/UC Extension
- Amanda Maguire/DWR
- Maureen Martin/Contra Costa Water District
- Stephanie Reyna-Hiestand/City of Tracy
- Nicky Sandhu/DWR
- Ian Uecker/DWR

Action Items

- Karen will update everyone once the transition to the new MSS project manager is complete.
- Karen will send the draft Modeling Assumptions report out for review by the first week of April.
- There will be a Technical Workgroup meeting focused on SCHISM and data assimilation soon.
- ICF will send out survey to collect everyone’s preferences for which meetings they would like to participate in.
- Meet with Jared, Eli and others meet with John Herrick at Paradise Cut to take a closer look at the weir, road, flap gate, and culvert near the Paradise Mutual Water District diversion.
- Send out link to modeling report video overview on YouTube.
- Follow up with South Delta Water Agency about verifying modeling assumptions.
- Schedule an in-person Technical Workgroup meeting focused on data assimilation (requested by Tom Burke).
- Eli and Ching-Fu to discuss max fluxes versus concentrations offline.

Welcome & Logistics

Bill McLaughlin opened the meeting and welcomed everyone. It's been a while since we've had a meeting, so we will be giving updates on all of the studies. We are still waiting for the State Board to accept the draft plan that we submitted. Meanwhile, we will continue moving forward with our work.

General MSS Updates

Karen Tolentino introduced herself as acting project manager for the MSS and provided the following updates:

- Ibraheem Alsufi was promoted to Senior Engineer and has moved on to his new job. His replacement was hired. She is getting onboarded, but she is not up and running yet. Please do not contact Ibraheem anymore. You can contact Karen or Bill McLaughlin with any questions. Karen will update everyone once the transition is complete.
- We submitted the MSS Plan to the State Water Resources Control Board in September 2022. We are still waiting for their approval.
- Since our last public coordination meeting, we held two Technical Workgroup meetings: One on SCHISM and data assimilation, and another on high-speed transect mapping.
- We will be holding another Technical Workgroup meeting focused on SCHISM and data assimilation in the near future.
- Modeling staff is working on a draft Modeling Assumptions report, which will ultimately be delivered to the State Board. Part of this includes the MSS, and we would like your input. Expect an email from Karen about this by the first week of April.

Poll – Refresh Preferences on MSS Meeting Participation

A live poll was taken for participants to record which meetings they would like to participate in. Unfortunately, the poll did not work correctly for everyone. Another survey will be sent out to capture everyone's responses, and also those that were not on today's call.

Technical Study Updates

High-Speed Salinity Transect Mapping/Patrick Scott

All 2022 transects are available upon request by contacting Patrick at patrick.scott@water.ca.gov. The data is available in several formats, including a compressed file geodatabase, individual layer packages, or as a CSV in tabular data. All can be used with GIS software.

A goal of this team's is to create a project packet that will live on the Environmental Data Initiative portal. This will allow people to search specifically for the MSS and get all of the transect, continuous, and discrete data in one spot.

John Herrick, South Delta Water Agency:

- I'm unclear on how high-speed transect mapping is helping us. A bunch of runs on one day is just a snapshot in time. We want to know where the water and salinity goes over time. How are we using this data over time?
 - *Response* (Patrick Scott): In some of the more complex areas (lower Old River, the confluence area, areas where we've had issues with compliance around OLD), we are trying to fill in as much seasonal, operational, and environmental gaps as possible, and getting multiple runs through there. This data is not being rolled into the data assimilation, but is being used to corroborate modeling results.

- John Herrick: Respectfully, that doesn't answer my question. How do we find out where that salt is moving overall throughout the system?
- Patrick Scott: This rolls into the overall analysis with our temporary and permanent stations that we are using to track how things are moving long-term.
- John Herrick: For example, if you take a transect at Grant Line on a specific date, but don't go back to that for several months...how does that information help us understand where the salt at Grant Line went? Again, it is just a snapshot. How does that give us more information for anything?
- Eli Ateljevich: Most salinity is shifting according to the tidal mean over weeks and months. You won't see flumes move downstream. You will see complicated spatial patterns emerge as the water goes into different phases of the tide. As a modeler, if we can see the spatial details in those transects that emerge from the model, it creates a more compelling story or a reason to watch the model. We can't be everywhere all the time.
- John Herrick: So when and where does that data from one particular day show up?
 - Eli Ateljevich: The spatial measurements will corroborate that the salt is moving in certain channels, going downstream, etc., as it should.
- Tom Burke/South Delta Water Agency: We are trying to understand how this data is being used. It sounds like it is being used for validation or calibration of the model. So you've got a continuous model that's running over multiple days or weeks and then you're going to put this dataset on top of that to validate how well the model is working continuously between the stations that we have. Am I understand that correctly?
 - Eli Ateljevich: It won't be used for calibration, but yes, that's correct.
- Tom Burke: Is that the only use of the data, or is there something else we want to be looking at in terms of how this data should be interpreted?
 - Eli Ateljevich: We are also looking to be sure that we are giving complete treatment to where salinity sources may be arising. So that we don't pass something by and there's a big spike in salinity that gets overlooked. That's another traditional use of the high-speed survey data.
 - Tom Burke: So, for point discharge identification, if there is a significant point source discharge and for validation of the model at a later date?
- Jacob McQuirk/DWR: My understanding is that we cannot continue to keep adding in monitoring stations. This would be cost-prohibitive and I'm not sure what the value would be. The high-speed transects help us understand reaches between points. We can't understand every condition, but the transects will help us understand what is happening between the points. I see it as quite valuable to get to reach compliance through point-compliance.
- John Herrick: How does one run at one location help us do this? If it happened a year and a half ago, it gives you no new information.
 - Jacob McQuirk: We can't do it all. I'm not sure if there is a better way to do it. More than years, we should look at the conditions under which they were taken (tidal, hydrologic, etc.).
- John Herrick: We are not happy with this program.
- Ching-Fu Chang/Contra Costa Water District: I can see both points. Personally, I think this has value, but not enough. Asking John's question from a different angle (this was also part of my comments in June)....I made a comment about identifying sources. We should look at flux, not

salinity, and whether flux is impacting salinity downstream somewhere. I also understand that it's impossible to test everything at every time. To get more out of this, there should be a way to estimate flux out of it, so you get more than just the salinity field.

- Eli Ateljevich: Under some circumstances, the flux will be determined by how well we can look at net flow. The concentration is going to be what turns out to dominate flux. The mass flux is not what's important. It's the concentration that's going to turn out to dominate what you see on both Grant Line and Old River.
- Ching-Fu Chang: At the end of the day, it is the flux field that is pushing salt from one location to another. It can't be just one or the other. It should be looked at together. At some point I'd like to talk to you about max fluxes versus concentrations, because I do not agree, if you've got a constant concentration, I don't think you'll see that much difference of the concentration of the whole system I want to make that point with you off line.
- Ching-Fu Chang: I'll take that answer to be that: for all the transects, you'll provide a narrative summary of the reason why you're observing the behavior (salinity measures along the transect), and that summary would be included with the data shared with us, and you would use modeling to verify that narrative?
 - Eli Ateljevich: That's exactly what we're looking to do.
- Michelle Leinfelder-Miles: I agree with the previous speakers: It is not clear how these snapshots in time are contributing to our understanding of salinity.

Salinity Point Source and Ion Sampling/Jared Frantzich

All data is available on the WDL website at <https://wdl.water.ca.gov>. All station codes are there. You can also contact Jared directly for the position of any of this data. We are currently up to date on 2022 data.

John Herrick: The blockages on Middle River were three trees down at one time because of the high flows, which are being cleared or are now cleared.

We created a new station called "Grant Line Canal West". This was a request from the modelers to understand salinity movement in this area. We also added a couple of stations at the top of Paradise Cut, as a result of our dye studies that showed differences in the two channels. We also added two stations in the null zone where temporary stations were before. This allows us to also look at salinity flux in the area. We've kept those going long-term—data will be collected through 2023 and then reported on.

- John Herrick: You said that the first dye test was at the Upper End of Paradise Cut, but I don't see one there. Is it PDUP?
 - *Response* (Jared Frantzich): We mean the furthest station up that we have.
- John Herrick: Upstream of the point you tested, significantly upstream, there's a small levy across the channel which holds Paradise Mutual Water District water. They have a license to divert water from the San Joaquin river over the weir into Paradise Cut. Any water they don't divert from there flows down from their little reservoir in the channel and so I think you need to be examining that to see how much water that is and if that accounts for your tentative conclusion there might be a slight net outflow from the channel because it's a dead end slough. This could be impacting net downstream flow. I'm not sure if that's the case, but it's worth investigating.

- Eli Ateljevich: There was an uncanny amount of water coming out of the small channel on the north side of the dye study.
- Jared Frantich: Yes, this is correct. During the dye study there was positive flow coming out of that channel. The dye could not move into that channel because there was constant water moving. I don't know where that was coming from.
- John Herrick: You need to come down here and go there with me. It's hard to imagine why this would be a net flow. This is contrary to what I understand there. I could be wrong, but we should go out there and look.
- Tom Burke: I believe there is a road crossing/levy/dam with a culvert underneath it with a flap gate. If open, water could be coming down from Old River, depending on flow or tidal conditions. This could explain that flow. (could be wrong – need to verify)
- Tom Burke: You installed Acoustic Doppler Current Profilers (ADCPs) at some flow stations to collect additional flow data, is that correct?
 - *Response* (Jared Frantich): Yes, on two locations on Old River. Dave will address this later. They were in from 5/24/22-11/8/22
- Tom Burke: Are you looking at the dye study for qualitative or quantitative information?
 - *Response* (Eli Ateljevich): Both, we traced the center of mass of the tracer as it moved and got a crude velocity and volume and control out of that location.

Modeling: SCHISM 3D and Water Quality Data Integration Modeling/Dave Huston and Eli Ateljevich

If you have any questions about the presentation, email them to Karen and she will forward to Eli.

Contact Dave Huston at: dave.huston@water.ca.gov

The Modeling Report is still in internal review, then will go out for stakeholder review. There is a recorded presentation about the MSS available on YouTube at:

<https://www.youtube.com/watch?v=vcZxIsCGNSw> (note that this is part of a larger Delta Modeling Section meeting presentation; the MSS part starts at the 35-minute mark.)

- Jelena Hartmann/SWRCB, via chat: Thank you Dave! Are data from upper and lower sentinel available online?
 - *Response* (Dave Huston): Not currently, but I can upload to our Hydstra database, which will then upload to the Water Data Library
- John Herrick: There are a few things I'd like to go over with you offline (i.e., water sources). I want you to understand some of the limitations of the sources for your estimations...some are good, and some are not reliable. These issues are not new to us in the South Delta. We have witnessed this stuff for 30 years. I'm concerned that we are spending time on things that are already figured out. You need to sit down with me and a farmer to go over your assumptions and whether they are correct or not. I don't want you to spend money on stuff that has already been addressed.
 - *Response* (Eli Ateljevich): None of this data has made it into models yet though, and that's the difference. We have to put these estimates together from multiple data sources...some are great, some are good, and some are mediocre. But we have quantitative estimates. These things are now entered in the model and they reproduce most of the flow phenomenon. Don't think of it as "we just discovered a null zone". No one has managed to get it in a model until now, and that is a change from past practice.

- John Herrick: The first thing you should do is to call up South Delta and say, “Could you and your engineer, maybe a farmer or two, meet with us, this is what we plan to do”. Let's discuss so we're all on the same track and we're not missing something or that you know something we don't or we know something you don't. I'm perplexed.
- Jacob McQuirk: We will follow up on this.
- Tom Burke: How is the ADCP used to create flow in these situations?
 - Response (Dave Huston): We used the index velocity method, data input includes average of multiple channel velocity transects to measure flow.
- Tom Burke: How comfortable do you feel about the flow measurements you've been getting from that? I was a little concerned with the mass balance you had in that last slide you're showing with the 78 and 88 CFS being discharged or withdrawn from that channel reach. That equates to about 74,000 GPM which Dan might know better than I, but it seems like a really high number.
 - Response (Dave Huston): It could be that ORM was slightly off. The point is primarily to show that we still have primarily upstream flow through half of this reach; and somewhere further east of that is where we may have a null zone. We weren't trying to find a smoking gun on hey there's X number of water being diverted for 2022 out of here. The point I was trying to make mostly it seems like diversions are fairly spread out across this channel.
- Tom Burke: I'd like a face-to-face meeting on data assimilation where we can work through things in person together. I would like to understand the data better and think in person would be best.
- Ching-Fu Chang: A lot of these studies are trying to understand current conditions. I would make understanding the current conditions a primary role, and modeling corroborating the narratives you get from observations secondary. I think where the model would shine is finding scenarios. It should not stop at current/historical conditions; this should be used to examine scenarios.
- John Herrick: DWR doesn't want to sit down with us. If we can sit down together, we may be able to get on the same page.
- Ching-Fu Chang: I think you zoomed into the modeling scenario too fast. For the planning scenario applications, your model doesn't stand by itself. It has to be accompanied by design scenario with a narrative with a purpose of why you're designing this and why do you expect this kind of action to actually help you with compliance. So, without even talking about modeling details, now I'm happy to see that you feel more confident about your model. You've made improvements. Knowing that, I think we can transition the focus to the design of the potential actions that could help you with compliance. Not modeling yet. Just ideas, just concepts. I commented in June the September draft didn't address it. That's why I'm saying it again.

Closing & Next Steps

Bill McLaughlin reiterated that the MSS is study-based, with the hopes of leading to a solution. These meetings are always so full. Thank you to all of the presenters on all of their hard work in the field and for updating us. Thank you for all of the participants.